

WHAT IS CLAIMED AS NEW AND DESIRED TO BE SECURED

BY LETTERS PATENT OF THE UNITED STATES IS:

Sub A

1. An electrical brush holder for applying a mechanical force to an electrical brush and for establishing electrical contact between the electrical brush sliding against a substrate, 5 and a current conducting element, comprising:
a first plate fastened to the current conducting element;
a second plate fastened to the brush;
a sidewall lengthwise extendable in an axis direction of the brush and cooperating with the first and second plates to form a volume defined by the first plate, the second plate and the sidewall; and
a fluidic medium contained in the volume and configured to apply a constant pressure to the brush.

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15 2. The electrical brush holder according to Claim 1, wherein said fluidic medium comprises at least one of a liquid metal and a pressurized gas.

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25 3. The electrical brush holder according to Claim 1, wherein said fluidic medium comprises a gas and a liquid metal in pressure-transmitting contact with each other via at least one flexible membrane.

4. The electrical brush holder according to Claim 3, wherein said pressurized gas is pressurized from a source external to the volume.

Sub A2

5. The electrical brush holder according to Claim 3, wherein said pressurized gas is entirely confined within the volume.

Sub B2

6. The electrical brush holder according to Claim 3, further comprising:

5 an electrical cable at least partly located outside of the volume and configured to establish the electrical contact between the brush and the electrical contact.

Sub B2

7. The electrical brush holder according to Claim 6, wherein said electrical cable comprises a plurality of solid metal filaments.

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8. The electrical brush holder according to Claim 7, wherein said plurality of metal filaments *each have an average* comprise a diameter of less than 51 μm .

A 9. The electrical brush holder according to Claim 7, wherein said plurality of metal filaments each have *an average* diameter of less than 41 μm .

A 10. The electrical brush holder according to Claim 7, wherein said plurality of metal filaments each have *an average* diameter of less than 11 μm .

20 11. The electrical brush holder according to Claim 7, wherein said electrical cable comprises a volume of liquid metal confined in a flexible tubing.

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12. The electrical brush holder according to Claim 1, wherein the first ^{wall} ~~plate~~ is fastened to the current conducting element via at least one of 1) a screw, 2) a dove-tail, 3) solder, 4) cement, 5) glue, 6) a magnetic force, 7) a suction cup, and 8) a bayonet closure.

5 13. The electrical brush holder according to Claim 1, wherein at least part of the
D sidewall comprises at least one of 1) spiral tubing, 2) telescoping tubing, 3) accordion pleated
A C bellows, and 4) flexible plastic sheet material.

10 14. The electrical brush holder according to Claim 1, further comprising:
support rods configured to support at least part of the sidewall.

Sub A 5 15. The electrical brush holder according to Claim 1, wherein the second ^{wall} ~~plate~~ comprises a wedge-shape in accordance with an intended axis direction of the brush.

20 16. The electrical brush holder according to Claim 1, wherein the first ^{wall} ~~plate~~ is angled relative to the sidewall.

A 17. The electrical brush holder according to Claim 1, further comprising:
rigid tubing surrounding the sidewall and configured to guide the second ^{wall} ~~plate~~ in the
axis direction of the brush.

A 18. The electrical brush holder according to Claim 1, further comprising:

Sub A a spring disposed between said first and second plates and configured to apply a mechanical force to the brush.

D D C C X 19. The electrical brush holder according to Claim 7, wherein the cable comprises electrical connectors configured to connect the cable to an electrical device.

Sub A 20. The electrical brush holder according to Claim 1, wherein the brush is permanently fastened to the second plate.

S U M M A R Y 21. The electrical brush holder according to Claim 1, wherein the brush is releasably fastened to the second plate.

Sub A 22. The electrical brush holder according to Claim 1, wherein the fluidic medium comprises a pressurized gas contained in a plurality of flexible membranes surrounded by a liquid metal.

20 23. The electrical brush holder according to Claim 1, wherein the fluidic medium comprises a pressurized gas contained in a donut-shaped flexible membrane surrounded by a liquid metal.

24. The electrical brush holder according to Claim 1, wherein the fluidic medium comprises a pressurized gas contained in a single flexible membrane surrounded by a liquid metal.

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25. The electrical brush holder according to Claim 1, further comprising:
at least a third ^{wall} plate fastened to at least another brush.

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